

Trend Study 10R-24-00

Study site name: Upper Tent Canyon .

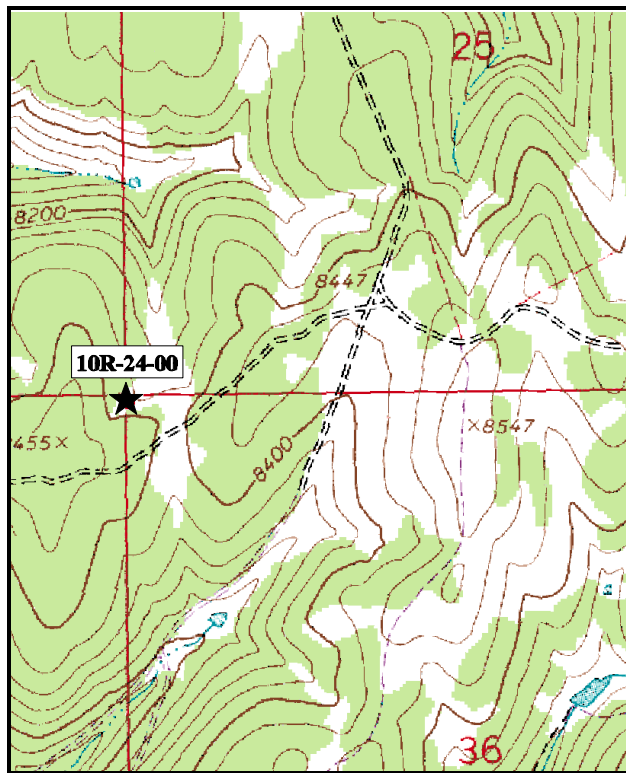
Range type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 43°M.

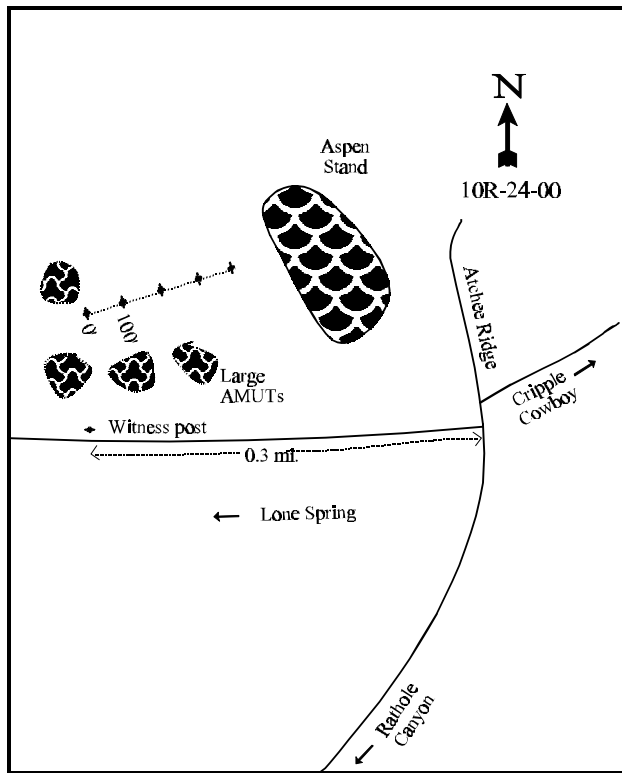
Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1(11 and 95 ft), line 2(34 ft), line 3(59 ft), line 4(71 ft).

LOCATION DESCRIPTION

From Atchee Ridge Road take the road to Lone Spring 0.3 miles to a witness post on the right side of the road. The site is located in a small bowl with aspen on the northeast side and serviceberry all around. The 0' stake is 72 paces from the witness post at 305°M and is marked with browse tag #112.

Map name: Rathole Ridge

Township 5 S, Range 104 W, Section 36 (CO).



Diagrammatic Sketch

UTM 4383684.444 N, 669299.662 E

DISCUSSION

Trend Study No. 10R-24

The Upper Tent Canyon study was established in 1998 as a special studies site to address perceived conflicts over elk and livestock use in the North Bookcliffs. This site lies in a sagebrush-grass bowl surrounded by aspen on the northeast. Thick pockets of large serviceberry surround the bowl on the south and west. The site has a variable slope from 5-15%, aspect is northerly at an elevation of about 8,000 feet. Animal use has been light in both 1998 and 2000. Pellet group transect data from 1998 estimated one deer days/acre (2 ddu/ha), 31 elk days use/acre (77 edu/ha), and 21 cow days/acre (52 cdu/ha). In the summer of 2000, pellet group data estimated one deer days use/acre (2 ddu/ha), 27 elk days use/acre (67 edu/ha), and 11 cow days use/acre (27 cdu/ha). This area is within the Atchee Ridge allotment which permits cattle grazing from June through September on a deferred rest rotation basis.

Soils are loamy in texture with an average temperature of 62°F at nearly 18 inches in depth. The soil is relatively deep with an estimated effective rooting depth of over 27 inches. There is very little rock within the profile or on the soil surface. Phosphorus (7 ppm) is slightly lower than the 10 ppm that is necessary for normal plant growth and development. Organic matter is moderately high at 4.1% with the soil reaction being moderately acidic (pH of 5.5). Due to abundant vegetation and litter cover and very little bare soil, erosion is minimal. The major source of soil disturbance comes from rodent burrows. Minor slumping is occurring on the steeper, upward edges of the slope above the transect.

As this site is transitional/summer range, browse is not the key component of this site. Nonetheless, browse is moderately abundant providing about 9% average cover in both 1998 and 2000, with mountain big sagebrush providing over 95% of this. Mountain big sagebrush has an estimated density of 5,760 plants/acre in 2000 with high levels of recruitment (55%) and reproductive potential (62%). Percent decadency is low at 3%, use is mostly light, and vigor good. Average leader growth for big sagebrush is seven inches in 2000. Other species sampled include: serviceberry, snowberry, and currant. These species are infrequent in the large depression where the transect was placed. Serviceberry is very large and abundant on the slopes surrounding the transect providing abundant cover for wildlife species. A large aspen clone also provides good cover to the east of the site.

The herbaceous understory is abundant with grasses providing nearly 31% average cover and forbs providing nearly 29% average cover in 2000. However, composition is poor as four species, Kentucky bluegrass, dandelion, aster, and yarrow, all increasers, contribute 93% of the total herbaceous cover in 2000. These species will increase under heavy grazing pressure. Grasses other than Kentucky bluegrass, although infrequent, were noted as being large statured in 2000. All forbs, including the increaser species listed above are low statured and unutilized in 2000.

1998 APPARENT TREND ASSESSMENT

Soils appear stable with abundant protective ground cover from vegetation and litter, and a low cover value for bare soil. Erosion appears to be minimal as a result, with the main source of soil disturbance coming from rodent burrows. Browse is dominated by mountain big sagebrush which is moderately dense and provides over 8% average cover. Browse trend appears to be stable to slightly up with low decadency, light use, good vigor, and high recruitment. However, browse is not the key component on this summer/transitional range. The herbaceous understory is abundant, but dominated by increaser species.

2000 TREND ASSESSMENT

Soils are stable with vegetation and litter cover remaining high and percent cover from bare ground decreasing. Browse trend is stable with mountain big sagebrush being dominant. Recruitment and reproductive potential remain high and percent decadency is low. Use remains light and vigor is good on sagebrush. Trend for the herbaceous understory is slightly up overall, but remains in a less than ideal condition as several increasers dominate. Although perennial grasses slightly decreased in sum of nested frequency, perennial forbs increased in sum of nested frequency. Combined, all perennial herbaceous species increased in nested frequency in 2000.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly up, but dominated by increasers (4)

HERBACEOUS TRENDS --

Herd unit 10R, Study no: 24

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'98	'00	'98	'00	'98	'00
G	Agropyron dasystachyum	26	11	9	5	.36	.12
G	Agropyron trachycaulum	-	6	-	3	-	.06
G	Carex spp.	6	3	2	1	.06	.15
G	Muhlenbergia pungens	5	-	1	-	.38	-
G	Poa fendleriana	9	1	3	1	.21	.00
G	Poa pratensis	485	487	99	100	32.15	30.10
G	Stipa columbiana	26	27	12	13	.85	.53
G	Stipa comata	-	-	-	-	-	.00
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		557	535	126	123	34.02	30.98
Total for Grasses		557	535	126	123	34.02	30.98
F	Achillea millefolium	178	181	66	65	1.94	3.07
F	Antennaria rosea	1	*29	1	11	.03	.45
F	Androsace septentrionalis (a)	57	*25	22	12	.53	.30
F	Arabis spp.	3	*16	2	9	.01	.05
F	Arenaria spp.	1	5	1	2	.03	.06
F	Aster spp.	98	*152	31	47	1.40	4.42
F	Astragalus spp.	-	7	-	2	-	.03
F	Crepis acuminata	10	*-	6	-	.13	-
F	Delphinium nuttallianum	1	-	1	-	.00	.00
F	Erigeron eatonii	50	56	20	24	.69	.92
F	Lupinus argenteus	13	8	7	4	.29	.07

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'98	'00	'98	'00	'98	'00
F	Penstemon watsonii	4	3	2	2	.06	.15
F	Phlox longifolia	7	*29	3	13	.09	.21
F	Polygonum douglasii (a)	6	-	2	-	.18	-
F	Potentilla gracilis	1	*7	1	3	.03	.18
F	Ranunculus spp.	9	23	7	10	.06	.06
F	Taraxacum officinale	318	*347	90	96	11.86	18.14
F	Thlaspi montanum	-	*10	-	5	-	.03
F	Tragopogon dubius	1	7	1	3	.00	.18
F	Vicia americana	43	52	14	23	.88	.53
F	Viola spp.	3	-	1	-	.03	-
Total for Annual Forbs		63	25	24	12	0.71	0.30
Total for Perennial Forbs		741	932	254	319	17.56	28.61
Total for Forbs		804	957	278	331	18.27	28.92

* Indicates significant difference at % = 0.10

BROWSE TRENDS --

Herd unit 10R, Study no: 24

T y p e	Species	Strip Frequency		Average Cover %	
		'98	'00	'98	'00
B	Amelanchier utahensis	0	0	.00	-
B	Artemisia tridentata vaseyana	74	81	8.06	9.34
B	Symphoricarpos oreophilus	6	11	.24	.39
Total for Browse		80	92	8.31	9.73

BASIC COVER --

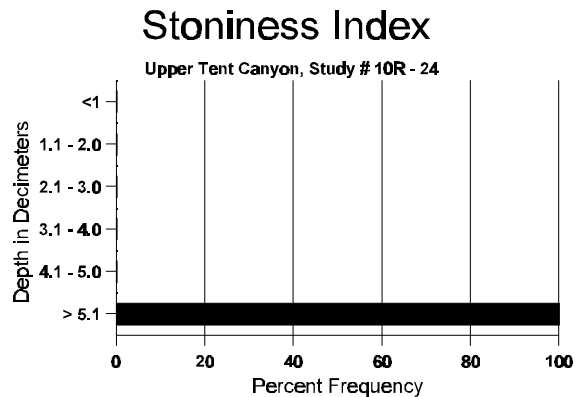
Herd unit 10R, Study no: 24

Cover Type	Nested Frequency		Average Cover %	
	'98	'00	'98	'00
Vegetation	497	497	61.51	65.13
Rock	2	2	.01	.01
Pavement	44	32	.22	.15
Litter	496	486	60.89	77.77
Cryptogams	18	14	.30	.42
Bare Ground	243	183	14.17	4.70

SOIL ANALYSIS DATA --

Herd Unit 10R, Study # 24, Study Name: Upper Tent Canyon

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
27.5	62.2 (17.7)	5.5	40.0	33.4	18.6	4.1	7.0	172.8	0.6



PELLET GROUP FREQUENCY --

Herd unit 10R, Study no: 24

Type	Quadrat Frequency		Pellet Transect			
			Pellet Groups per Acre		Days Use per Acre (ha)	
	'98	'00	'98	'00	'98	'00
Rabbit	1	2	-	-	-	-
Elk	18	18	409	357	31 (78)	27 (67)
Deer	1	-	9	9	1 (2)	1 (2)
Cattle	11	1	235	131	21 (52)	11 (27)

BROWSE CHARACTERISTICS --

Herd unit 10R, Study no: 24

A Y G R E	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total	
		1	2	3	4	5	6	7	8	9	1	2	3				4
Amelanchier utahensis																	
S	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>			
'98		00%				00%				00%							
'00		00%				00%				00%							
Total Plants/Acre (excluding Dead & Seedlings)										'98				0	Dec:	-	
										'00				0		-	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	98	54	-	-	11	-	-	-	-	-	65	-	-	-	1300		65	
	00	179	-	-	-	-	-	-	-	-	179	-	-	-	3580		179	
Y	98	119	-	-	-	-	-	-	-	-	119	-	-	-	2380		119	
	00	158	-	-	-	-	-	-	-	-	158	-	-	-	3160		158	
M	98	76	-	-	-	-	-	-	-	-	76	-	-	-	1520	32	36	
	00	115	7	-	-	-	-	-	-	-	112	10	-	-	2440	27	31	
D	98	4	2	-	-	-	-	-	-	-	2	-	-	4	120		6	
	00	7	1	-	-	-	-	-	-	-	7	-	-	1	160		8	
X	98	-	-	-	-	-	-	-	-	-	-	-	-	-	740		37	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	500		25	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'98		.99%			00%			02%			+30%							
'00		03%			00%			.34%										
Total Plants/Acre (excluding Dead & Seedlings)												'98	4020	Dec:	3%			
												'00	5760		3%			
Ribes spp.																		
M	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	34	37	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'98		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'98	0	Dec:	-			
												'00	0		-			
Symphoricarpos oreophilus																		
S	98	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
Y	98	2	-	-	4	-	-	-	-	-	6	-	-	-	120		6	
	00	12	-	-	-	-	-	-	-	-	12	-	-	-	240		12	
M	98	3	-	-	1	-	-	-	-	-	4	-	-	-	80	22	25	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	24	37	
X	98	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'98		00%			00%			00%			+23%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'98	200	Dec:	-			
												'00	260		-			